

# INTRODUCTION to COMPUTER AND ICT

BY  
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For BS Computer Science, BS (IT),  
BS Geology, BS Mathematics,  
BS Commerce, BS Statistics



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**MANAGEMENT Information System**  
**1<sup>st</sup> Edition**  
**Dr. Rahman Ali**



# MANAGEMENT Information System

**1<sup>st</sup> Edition**

In accordance with approved curriculum  
for BS Commerce, Master of Commerce,  
BBA and MBA program of the HEC  
and University of Peshawar.



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## Chapter 9:

# Internet & World Wide Web

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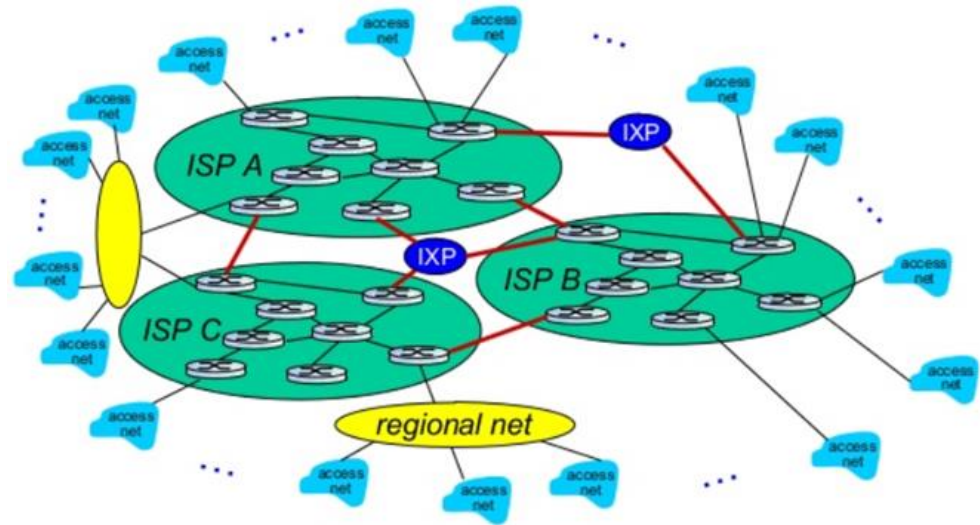
## Outlines

- ✓ INTERNET
- ✓ WORLD WIDE WEB
- ✓ WEB BROWSER
- ✓ HTML
- ✓ DOWNLOADING
- ✓ ADDRESSES AND LINKS
- ✓ IP ADDRESS
- ✓ IPv4 Address
- ✓ IPv6 Address
- ✓ DOMAIN NAME SYSTEM
- ✓ SEARCH ENGINES AND WEB SEARCHING
- ✓ EMAIL
- ✓ CHAT ROOMS
- ✓ VOIP
- ✓ GPS
- ✓ NEWSGROUPS
- ✓ RSS
- ✓ VOICE MAIL
- ✓ SOCIAL NETWORKS
- ✓ WIRELESS MESSAGING SERVICES
- ✓ CYBERCRIME
- ✓ E-COMMERCE AND E-BUSINESS

# Internet

## ➤ Internet

- Internet is the global system of interconnected computer networks that is used to link devices worldwide.
- Internet is a network of networks that consists of private, public, business, academic and governmental networks from local to global scope.

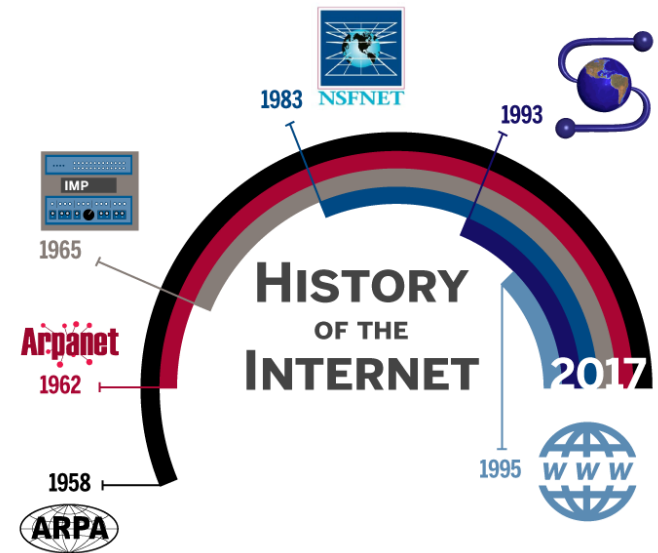


Internet

# History of Internet

## ➤ History of Internet

- In 1958, ARPA (Advanced Research Projects Agency) was created
  - ARPA produced prototype of internet in the 1962.
  - Interface Message Processors (IMPs) in 1965,
  - During the 1960s and 1970s, many other network were created that include NPL network, Merit Network, CYCLADES, UUCP and Usenet etc.
- In 1970s, (TCP/IP) were developed
- ARPANET adopted TCP/IP in 1983 and formally launched National Science Foundation Network (NSFNET) in 1985.
- The Mosaic web browser was created in 1993,
- In 1995, the commercial use of internet was started



History of Internet

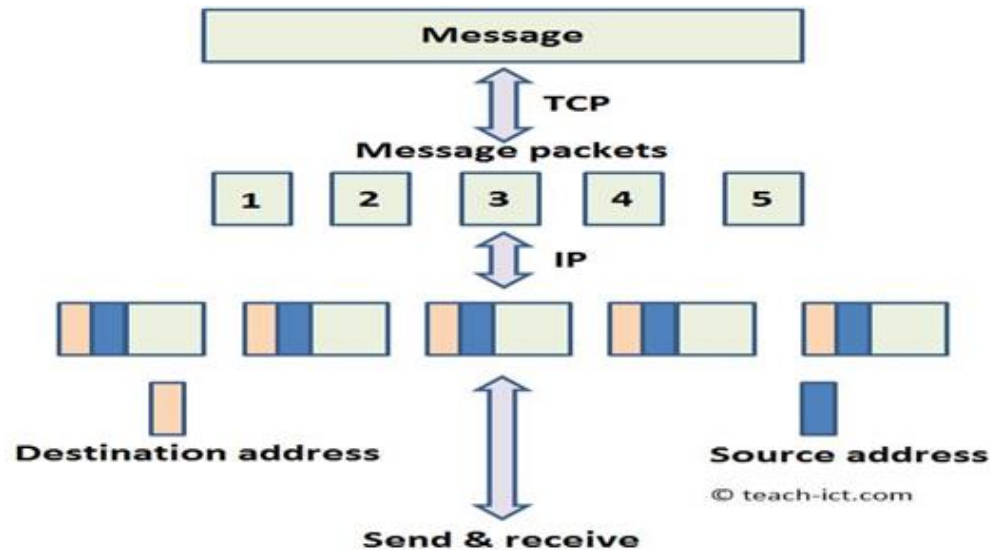
# TCP/IP

## ➤ Protocol

- A set of rules that governs the communication of data.

## ➤ TCP/P

- A suite of protocols that is used to interconnect network devices on the internet, in an intranet or extranet.
- It identifies how data should be broken into packets, transmitted, routed and received at the destination.



Working of Internet Protocol TCP/IP



# World Wide Web

- An information space where documents and other web resources are interlinked
  - hyperlinks can be accessed via the internet.
- Documents are identified by Uniform Resource Locators (URLs).
- Invented by Tim Berners Lee, in 1989.
- Lee created the first web browser software in 1990.



Figure 9.1: World Wide Web

Source: <https://www.lifewire.com>

# Evolution of Web

## ➤ Web 1.0

- first generation of the world of the World Wide Web.
- static web pages with no deep coding that is stored as an HTML document and delivered to the users through web browsers.
- not interactive, the users only could just visit and read the information

## • Web 2.0

- used in 2003.
- feature-rich, dynamic web pages which the users can interact with.
- The websites include web applications and applets and allow the users to develop their own application by integrating the functionality of the websites.
- example, Facebook and Twitter allowed other developers to use their API's and produce applications.

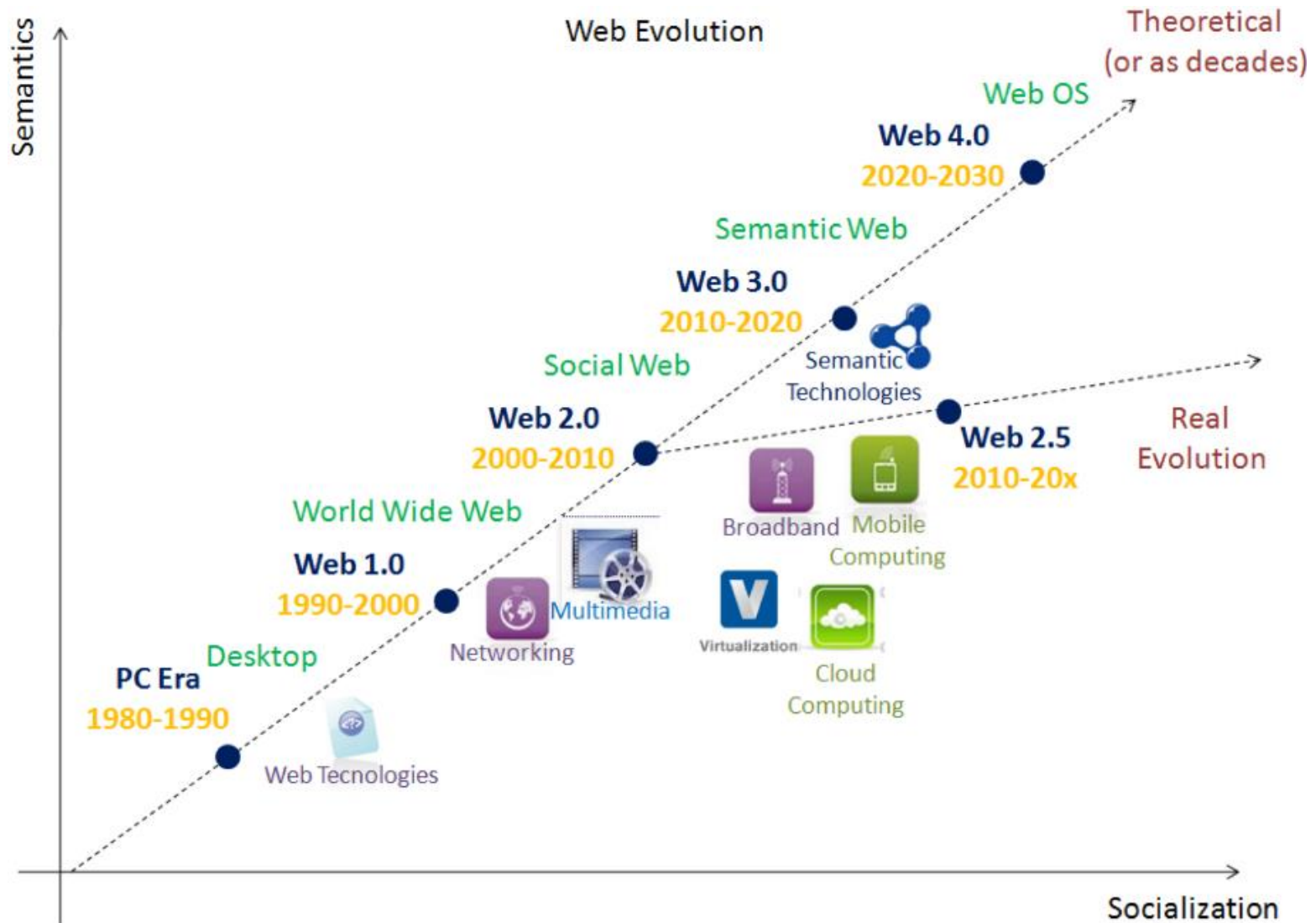
## • Web 3.0

- called Semantic Web
- artificial intelligence IS integrated
- the search engines are able to understand the context of users' queries and present exactly what they are looking for.

## • Web 4.0

- FUTURE WEB.
- Will integrate AI to work like human brain
- Will automate daily life task

# Evolution of Web

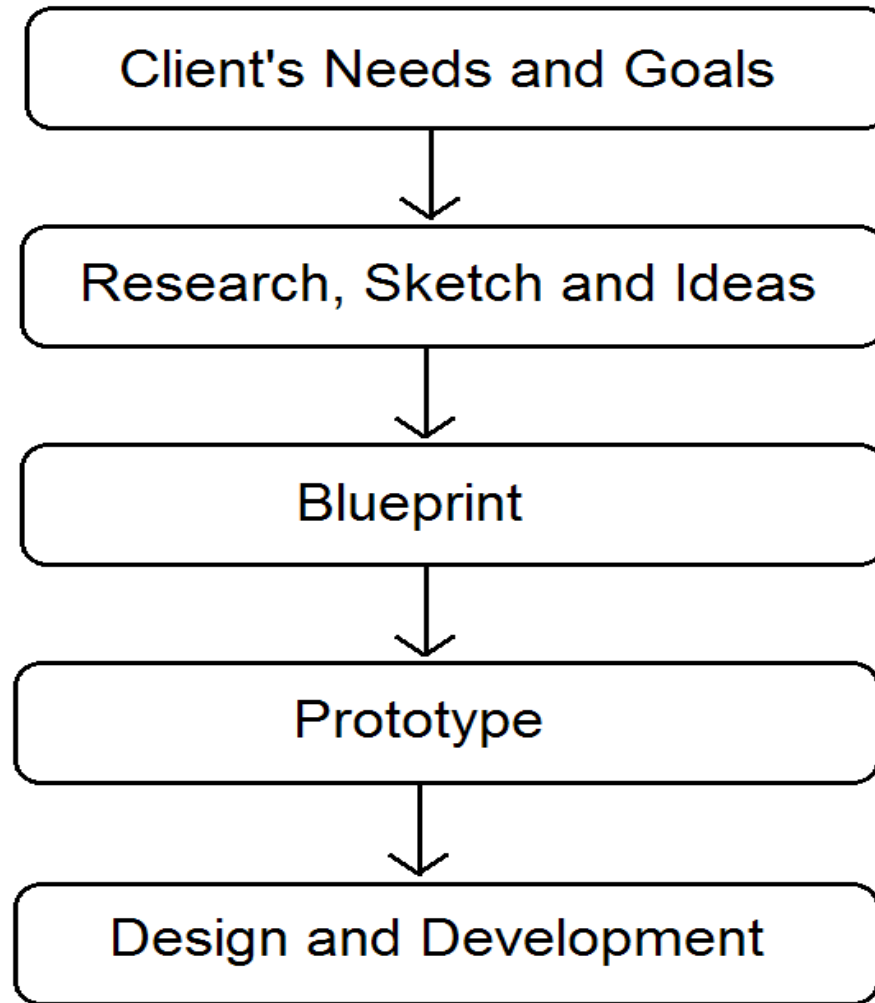




# Website

- A central repository of many web pages that are inter-related and can be accessed via a web browser.
- A collection of various web pages that range from a few to several millions pages.
- Example,
  - en.wikipedia.org is a website, while an article on it is a web page.
- Types
  - Can be a personal website, an organization's website, governmental website or an E-commerce website.
- Used for
  - Blogging
  - Emails and instant messaging
  - Ecommerce, like online shopping
  - Social networking websites, like Facebook and Twitter etc.
  - Informational websites provide information about an entity like an organization or event.
  - Educational websites present different articles and tutorials.
  - Entertainment, like music, videos and photography etc.
  - Fashion and style
  - Promotional websites promote a person, a group or a brand.

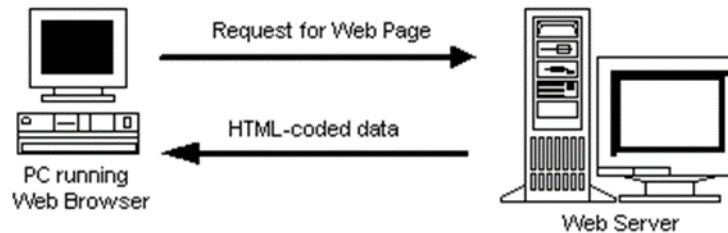
# Web Designing Steps



**Website Design Steps**

# Web Browser

- Web browser, shortly called browser is a software tool that allow us to access and display webpages.
- **How Web Browser Works**
  - A web browser communicates with the servers that are hosting different websites
  - translate the content of webpages to human readable content.
  - It retrieves code written in HTML and other computer languages from the web servers, interprets and displays this code as a web page for us to view.



## ➤ Examples

- Google Chrome, Mozilla Firefox, Opera, Internet Explorer and Apple Safari are some the well-known web browsers.



- Examples of Web Browsers

# HTML

## ➤ HTML

- Short name for “Hyper Text Markup Language”,
- It is a programming language used to create electronic documents, i.e. pages displayed on the World Wide Web.
- The following code snippet is the HTML code for a simple user login mechanism on a web page.

```
<label> User Login </label>
<br> <br>

<label>Username: </label>
<input type = "text" name = "username" id =
"username" />
<br> <br>

<label>Password: </label>
<input type = "password" name = "pass" id = "pass" />
```

### Example of HTML Code

- Save this text as html file and open it in a browser, you would see the following output.

User Login

Username:

Password:

### Output of the Above HTML Code

# Downloading

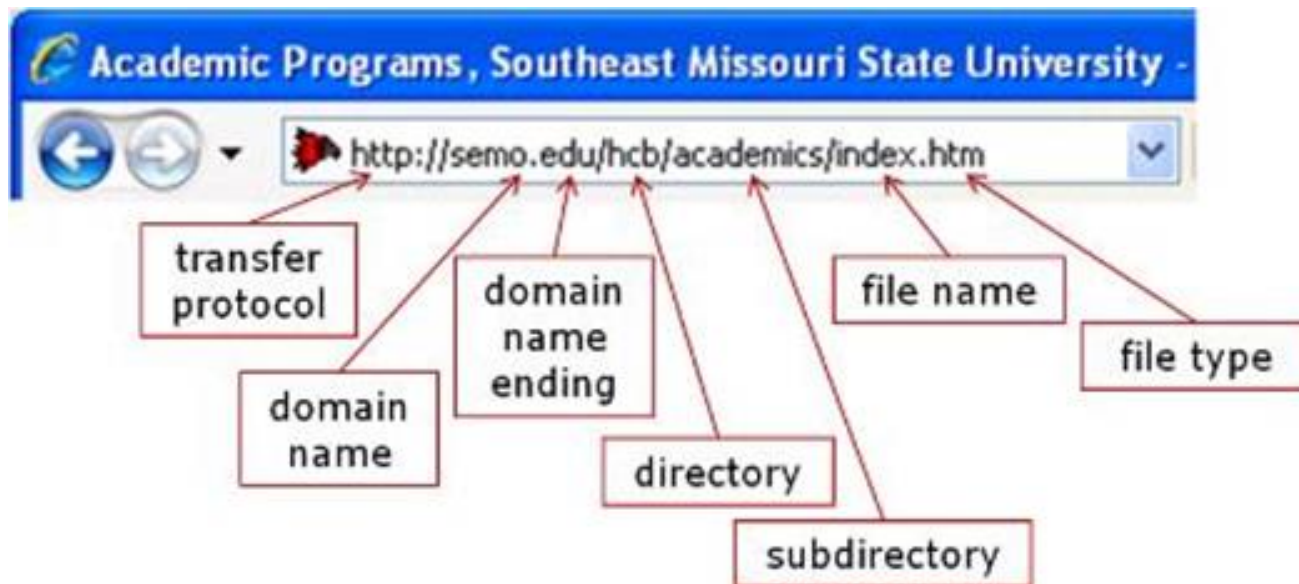
- The act of transmitting a file from one computer system/a server computer on WWW to another
- From the internet point of view,
  - it is the process of copying data like music, video, text, software and images etc. from a remote source on the internet like a server and saving to your computer.



The process of Downloading

# Addresses and Links

- An address, or web address, also called Uniform Resource Locator (URL) is a reference to a web resource like a website, a webpage, a video, an image or some other resource.
- Specifies the location of the web resource on the internet.
- Structure of Web Address
  - Starts with a protocol, like http or https.
  - The protocol is followed by a unique name obtained from a domain name registration service.
  - Next is the domain e.g. .com, .org, .net, .gov etc.
  - The address may also contain directories and filenames.





# IP Addresses

## ➤ Definition

- IP address, short for Internet Protocol Address, is a numerical address given to each computer device connected to a network using Internet Protocol (IP) for communication
- Is an identity to the networked device

## ➤ Working

- DNS server looks up the hostname you entered (for example Google.com) to find its corresponding IP address

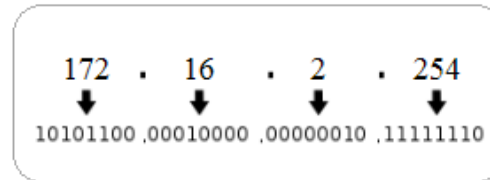
## ➤ Assignment of IP Address

- Dynamic: assigned at boot time
- Static: assigned at the time of configuration

# IP Address Types

## ➤ IPv4 Address

- 32 bit number that is generally represented in a human readable form such as 172.16.2.254



Structure of IPv4 Address

## ➤ Size

- Provides a total of  $2^{32}$  addresses

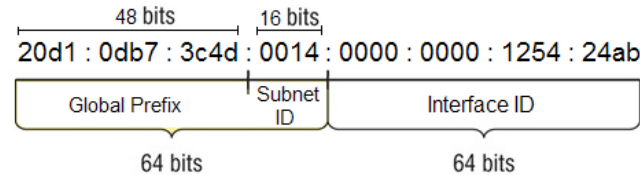
## ➤ Parts of IPv4 address

- The first one, two or three groups represent the Network Part of the address, which is the unique number assigned to each network.
- The rest of the address (one, two or three groups) represents Host Part which is a unique number that represents each host or device within a network.

# IP Address Types

## ➤ IPv4 Address

- 128 bit IP address



Structure of IPv6 Address

## ➤ Size

- Provides a total of  $2^{128}$  addresses

## ➤ Parts of IPv4 address

- Consists of eight groups of hexadecimal digits separated by colon, each group of which represent 16 bits.
- The address is divided into the following three parts.
  - The first 48 bits represent the global routing prefix which is the network ID used for routing and is unique for each organization like an ISP.
  - The next 16 bits represent subnet ID which is unique for each subnet within an organization.
  - The last 64 bits is the interface ID which is unique for a particular host or device within the specific prefix and subnet.

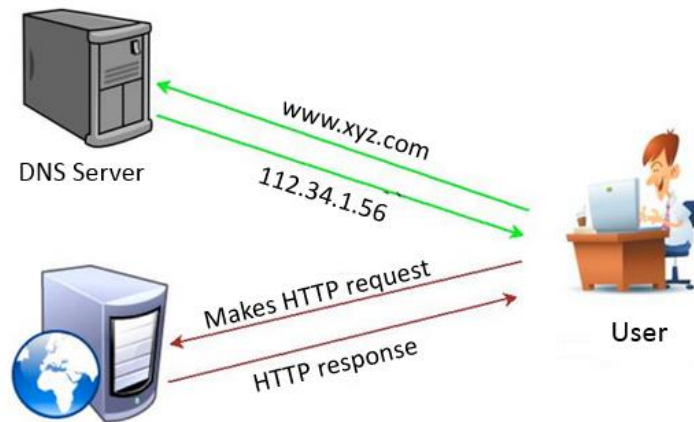
# Domain Name System (DNS)

## ➤ Definition

- DNS is the way that internet domain names are located and translated into internet protocol (IP) addresses.
- Maps the name people use to locate a website to the IP address that a computer uses to locate a website.

## ➤ Example

- For example, if you type [www.google.com](http://www.google.com) in your web browser, the DNS behind the scene will map it to the IP address of Google (e.g. 74.125.224.72).



Working of DNS

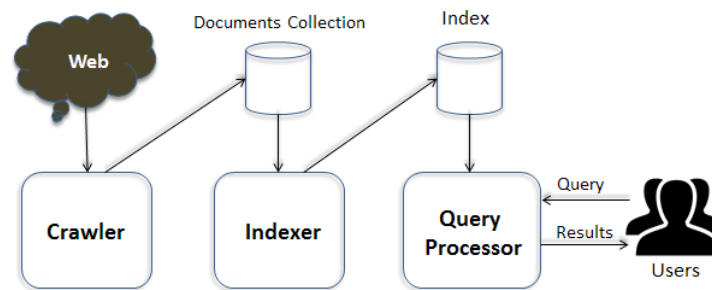
# Search Engines and Web Searching

## ➤ Definition

- An online tool that is designed to search for information on the World Wide Web.
- A software program available through the internet that performs search based on specific keywords and returns the results of any webpage or file including those keywords.

## ➤ Components

- A web crawler that crawl WWW.
- An indexer, which indexes everything the web crawler visits, in a data storage.
- Query processor that performs search on users' queries and returns the search results.



Structure of a Search Engine

## ➤ Examples

- Google, Yahoo, Bing and Ask.com etc.

# Uses of Search Engines

## ➤ Most Common Uses of Search Engines

- General Search
- Image Search
- Research
- Shopping
- Entertainment
- Many more



# Email

- Email or E-mail, short for electronic mail
- A method of exchanging messages among people using electronic devices like computer, smartphone etc.
- Invented by Ray Tomlinson.
- Parts of Email
  - Each email has a header that typically include the sender, date, subject and in-reply-to etc.
  - Email body is the actual message that is comprised of text, HTML or images etc.



Working of Email

# Email - sending

- You must have an email address, if not, create

## ➤ Sending Email & Attachment

From	[Redacted]	→	Sender (You)
To	ali@gmail.com	→	Recipient
Cc	Gul@yahoo.com	→	Additional recipient
Invitation to birthday party		→	Subject
Some Text		→	Email body

Working of Email

	→	Attached file
asdf.txt 2328		
Attach files		

Adding Attachment

## ➤ Attachments

- To send documents and pictures or other media

# Email – Replying & Forwarding

- You can reply to, or can forward to other users an email that you receive.

## ➤ Replying & Forwarding



# Chat Rooms

## ➤ Definition

- Online applications that are used for communicating with multiple people at the same time through the internet

## ➤ Means of Communication

- via chat rooms
- through text messages or video conferencing using webcam.

## ➤ Example

- Talkomatic which was developed in 1973.
- It could accommodate a communication among five people on the same channel. Later many advanced chat rooms were developed and today we have numerous advanced applications for group messaging and group calls.

# VoIP

## ➤ Definition

- VoIP stands for Voice over Internet Protocol.
- It is a way to make telephone calls through the internet
- The communication doesn't necessarily needs a telephone set or a mobile phone but can be made via other devices as well such as computer, laptop etc.



Idea of Voice over Internet Protocol (VoIP)

## ➤ Example

- Skype, Facebook messenger, Wechat and Viber etc

## ➤ Definition

- Short for Global Positioning System.
- A network of satellites that are orbiting around the earth and send precise detail of their position.



GPS System for Global Positioning

## ➤ Purpose

- Military, Airlines, Shipping companies, Trucking firms, Drivers and even pedestrians to track the way to their destinations, Tracking vehicles, Finding the best path from one point to another.



# Newsgroup

## ➤ Definition

- Newsgroup is a location where individuals can discuss particular topics and issues, ranging from domestic and social to political and international issues, by posting messages and posts on a news server.

## ➤ Categories of newsgroups including,

- News
- Recreation (rec)
- Society (soc)
- Science (sci)
- Computers (comp) and many more

## ➤ Examples

- A newsgroup is similar to a forum where everyone can post and read
- FAQ

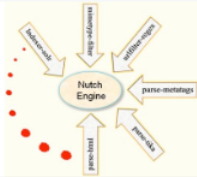
## ➤ Definition

- Stands for Rich Site Summary.
- It is a mechanism for delivering the changing contents of websites.

## ➤ Tools Used

- Feed Reader and News Aggregator software are used to deliver RSS feeds and shown to the user at one place.

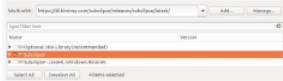
## ➤ Examples



ASMAT ALI 53d ago

### Nutch Plugins – Introduction and Development


The plugin system of Nutch allows us to customize Nutch according to our needs in a very flexible and maintainable way. To actually take benefit of crawling with Nutch, we need to be able to write custom plugins for Nutch which include parsing, indexin...



ASMAT ALI 54d ago

### Running Nutch 1.x in Eclipse

We can load Nutch project to eclipse. This is useful for running the crawl from within eclipse and development purposes. In this article, we will learn how to install and set up eclipse for running Nutch and how to load and run nutch within eclipse. Setting...



ASMAT ALI 54d ago

### Integrating Apache Nutch 1.x with Solr

Solr is a searching platform built on the top of Lucence that is used to build search applications. It is a scalable storage and search engine that is designed to search large amounts of text-centric data. It is used to search information from a large...

## Examples of RSS Feeds

## ➤ Definition

- A type of communication identical to phone calling or calling over the internet,
- Voice mail mechanism is similar to the old answering machine, the only difference is that the voice mail is stored on an online server instead of on the user's machine.

## ➤ Examples

- Facebook messenger, Whatsapp and Wechat etc.

# Social Networks

## ➤ Definition

- Also called virtual community
- A website that brings people together to share ideas, events and interests, make new friends.
- The media that provide such platforms are known as social media.

## ➤ Examples

- Facebook, Twitter, Google+



Example Social Networks

# Wireless Messaging Services

## ➤ Definition

- Known as text messaging.
- Is the act of sending short messages consisting of alphanumeric data through cellphones or other handheld devices.



Wireless Messaging

## ➤ Definition

- Called computer crime
- The act of committing a crime using computer and internet.

## ➤ Examples

- includes hacking, phishing, spamming, spreading hatred and many more.



## ➤ Definition

- Buying or selling and servicing online.

## ➤ E-commerce include

- Online Shopping
- Electronic Payment
- Online Auctions
- Internet Banking
- Online Ticket selling and more.

## ➤ Types

- B2B
- B2C
- C2B
- C2C
- B2G/G2B

# Mobile Commerce

## ➤ Definition

- Products and services are sold and bought through wireless technology through mobile devices

## ➤ Examples

- For example, in China, TaoBao and JD
- The funds transfer is done through mobile applications like Wechat and Alipay.



E-commerce using Mobile

# References

- Ali, R. & Ali, A. (2018). Chapter 9: Internet and World Wide Web. *Management Information System – 1<sup>st</sup> Edition* (pp. 172-185). Muhalla Jangi, Qissa Khawani, Peshawar, Pakistan: Al-ilum Publications.

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Thanks!

Any Questions

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